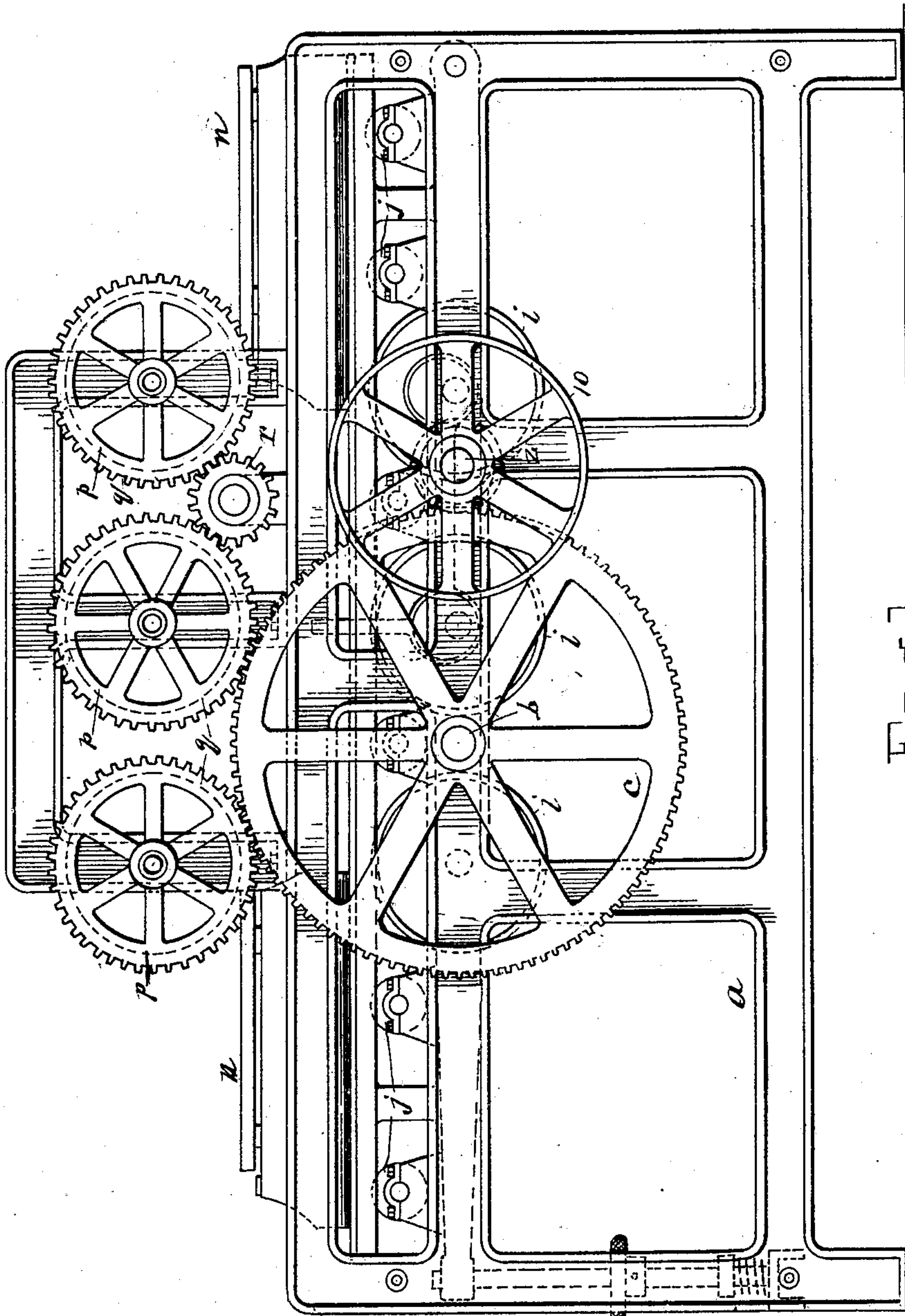


W. R. HAGER.  
IRONING MACHINE.  
APPLICATION FILED NOV. 30, 1908.

924,769.

Patented June 15, 1909.

6 SHEETS—SHEET 1.



Witnesses.

O. B. Baenziger,  
E. M. Spielberg.

Inventor.

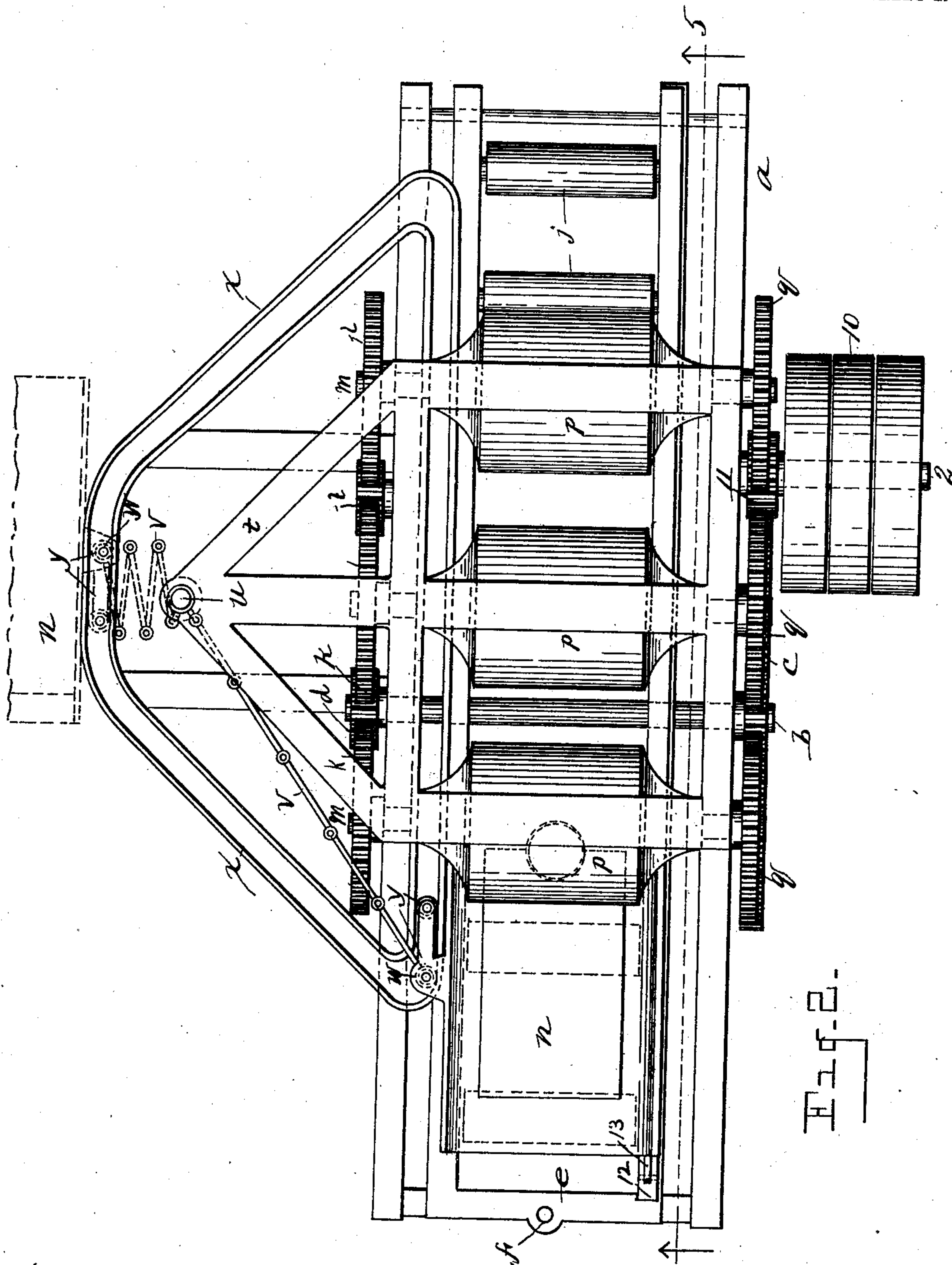
William R. Hager  
By his Attorney  
Mwll S. Wright.

W. R. HAGER.  
IRONING MACHINE.  
APPLICATION FILED NOV. 30, 1906.

924,769.

Patented June 15, 1909.

6 SHEETS—SHEET 2.



Witnesses.

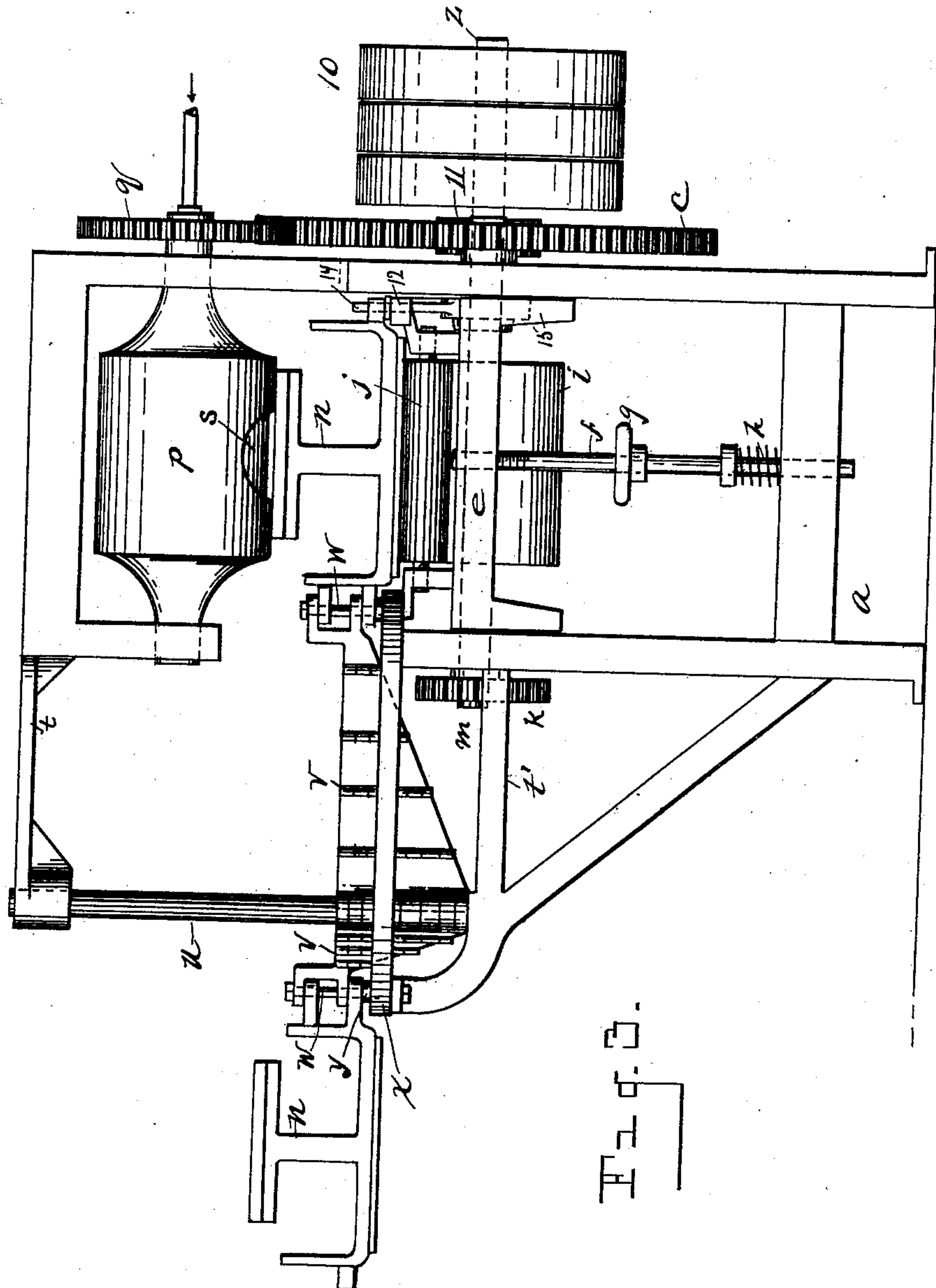
O. B. Baenziger.  
E. M. Spielburg.

Inventor.

William R. Hager  
By his Attorney  
Newell S. Wright.

924,769.

6 SHEETS--SHEET 3.



O. B. Buenziger.  
E. M. Spielburg.

Inventor.  
William R. Hager  
By his Attorney  
Newell S. Wright.



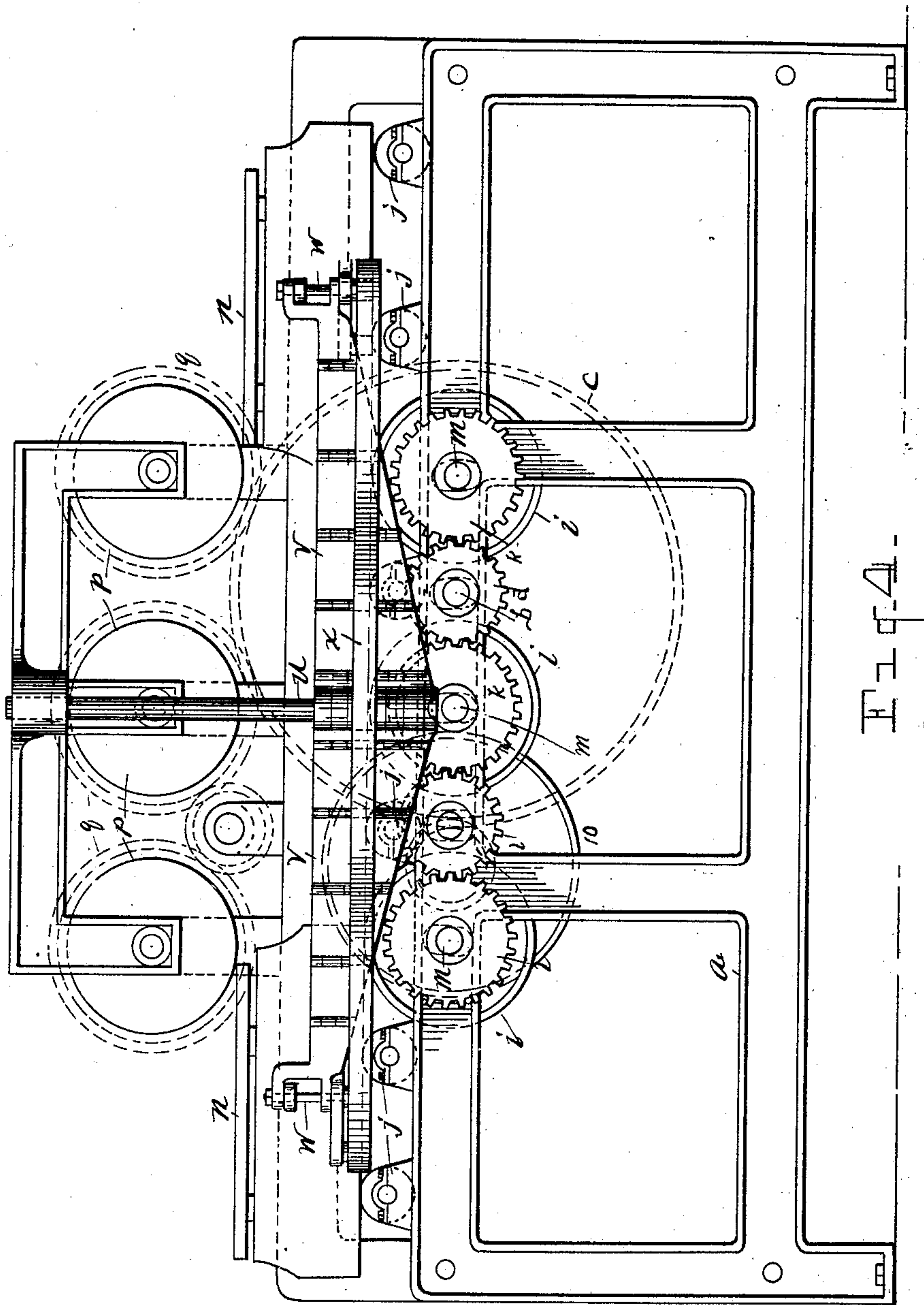
W. R. HAGER.  
IRONING MACHINE.

APPLICATION FILED NOV. 30, 1906.

924,769.

Patented June 15, 1909.

6 SHEETS—SHEET 4.



Witnesses

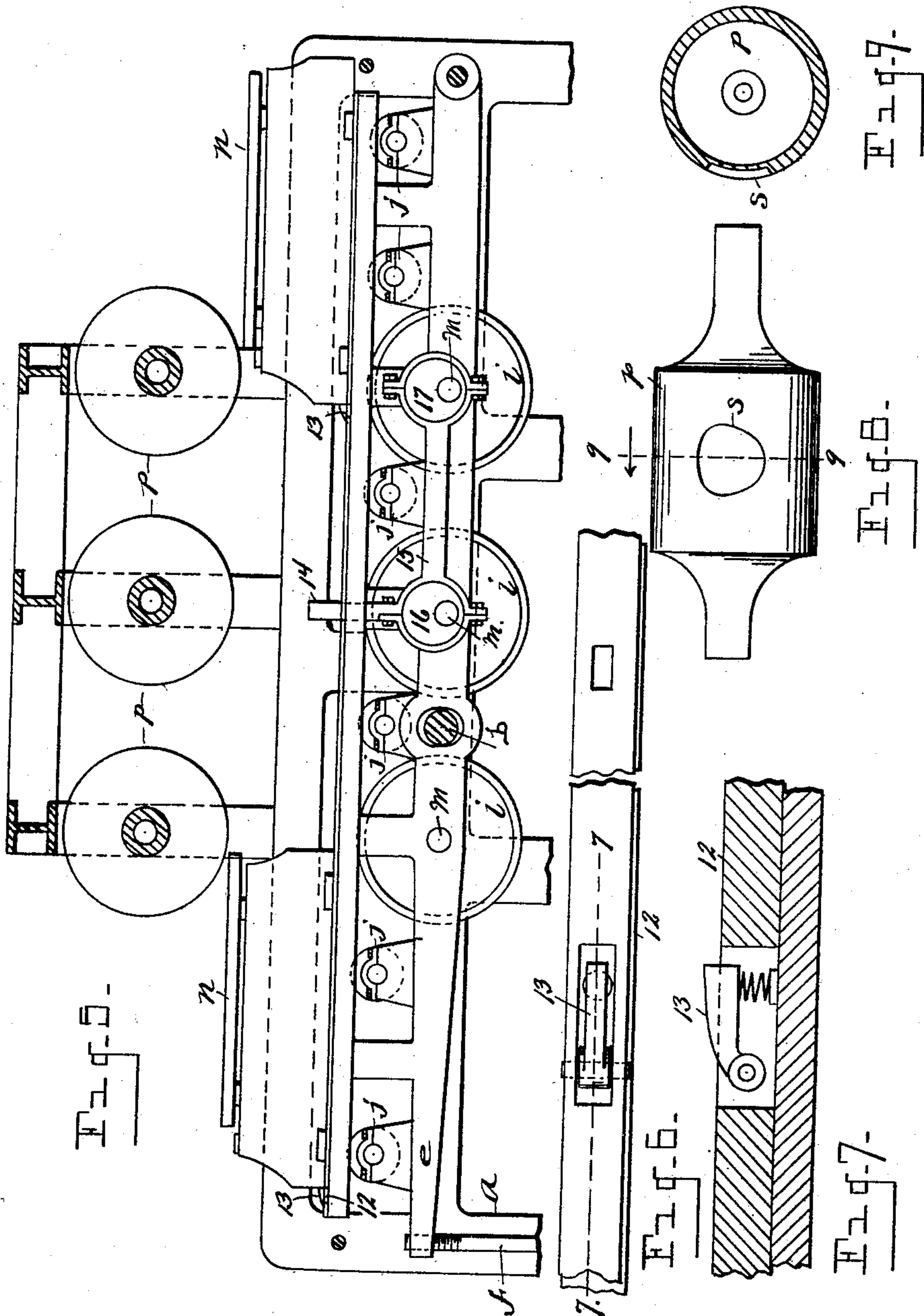
O. B. Baenziger  
E. M. Spielburg.

Inventor.

William R. Hager  
By two Attorneys  
Newell S. Wright.

**924,769.**

6 SHEETS—SHEET 5.



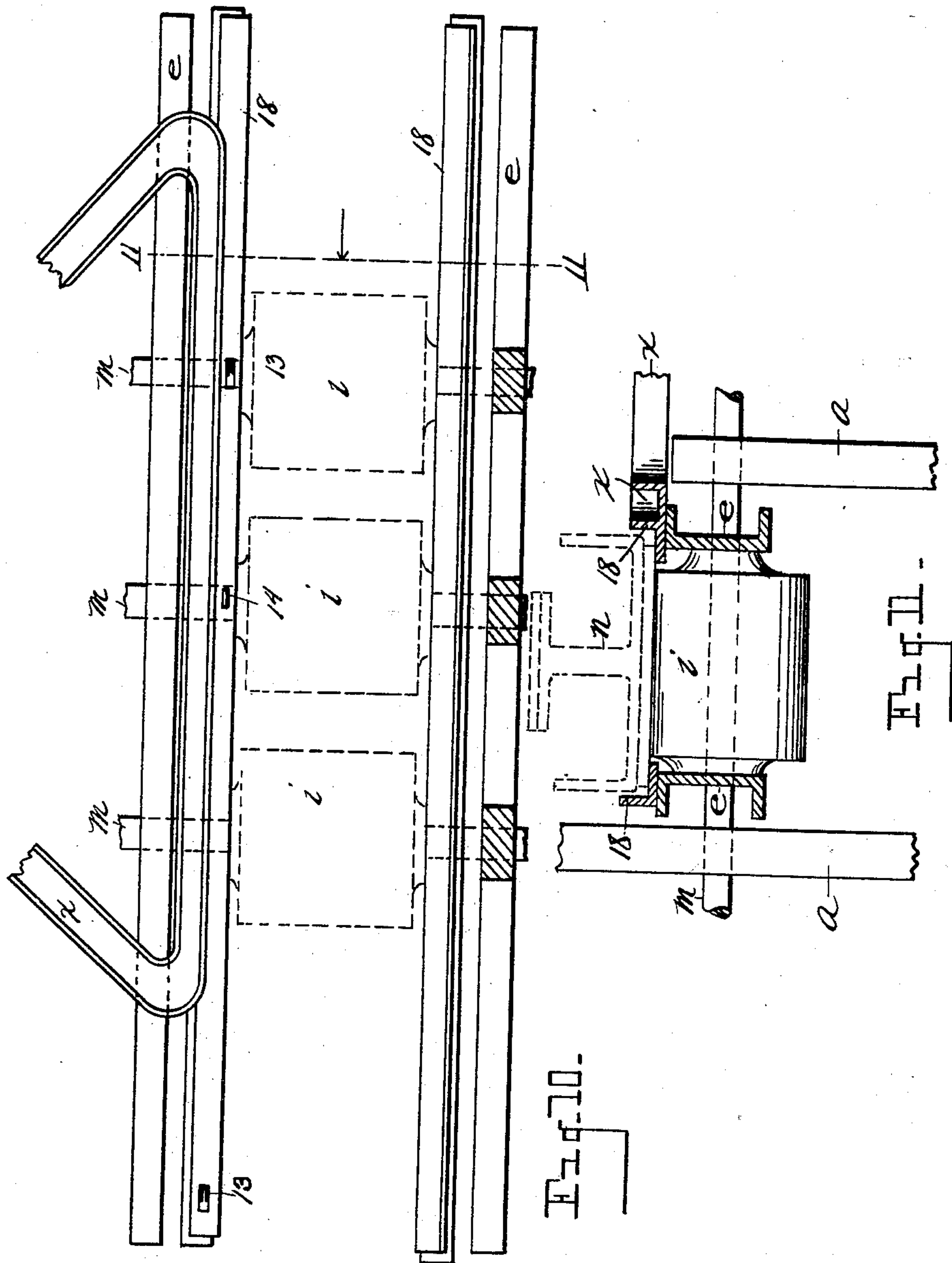
C. B. Puenziger.  
E. M. Spielburg.

William R. Hager <sup>Inventor.</sup>  
By his Attorney  
Mwll S. Wright.

W. R. HAGER.  
 IRONING MACHINE.  
 APPLICATION FILED NOV. 30, 1908.

924,769.

Patented June 15, 1909.  
 6 SHEETS—SHEET 6.



Witnesses  
*O. B. Baenziger.*  
*E. E. Mc Gram*

Inventor  
*William R. Hager*  
*By Newell S. Wright*  
 Attorneys



# UNITED STATES PATENT OFFICE.

WILLIAM R. HAGER, OF DETROIT, MICHIGAN.

## IRONING-MACHINE.

No. 924,769.

Specification of Letters Patent.

Patented June 15, 1909.

Application filed November 30, 1906. Serial No. 345,605.

*To all whom it may concern:*

Be it known that I, WILLIAM R. HAGER, a citizen of the United States, residing at Detroit, county of Wayne, State of Michigan, have invented a certain new and useful Improvement in Ironing-Machines, of which the following is a specification, reference being had to the accompanying drawings, which form a part of this specification.

My invention has for its object certain new and useful improvements in a laundry machine, the same having more particular reference to an ironing machine for ironing shirt fronts.

My invention consists of the construction, combination and arrangement of appliances hereinafter described and claimed and illustrated in the accompanying drawings, in which,

Figure 1 is a view in side elevation. Fig. 2 is a view in plan. Fig. 3 is an end elevation. Fig. 4 is a view in side elevation from the side opposite that shown in Fig. 1. Fig. 5 is a view in section on the line 5—5, Fig. 2. Fig. 6 is a detail view of the board feeding bar. Fig. 7 is a view in section on the line 7—7, Fig. 6. Fig. 8 is a detail view of one of the ironing rollers. Fig. 9 is a view in section on the line 9—9, Fig. 8. Fig. 10 is a plan view of portions of the mechanism. Fig. 11 is a view in cross section.

Among the objects of my invention are: 1. To increase the capacity of an ironing machine of the class referred to. 2. To construct the ironing rolls to receive a shirt band in the operation of ironing the shirt front to prevent injury to the shirt front in ironing. 3. To provide novel means for feeding the ironing boards through the machine.

I carry out my invention as follows:

In the drawings *a* represents any suitable support or main frame, in which is journaled a driving shaft *b* provided with a driving gear *c* at one end thereof, and with an additional driving gear *d* at the opposite end thereof. An auxiliary frame is indicated at *e* engaged in the usual manner with the supporting frame *a*, one end of which is vertically movable in a customary manner by means of a threaded adjusting rod *f* which may be provided with a hand wheel *g* and a spring *h* to exert a normal tension upon the auxiliary frame. The auxiliary frame *e* carries a series of friction driving rolls indicated at *i*, three being shown in the accompanying draw-

ings. Additional bearing rolls *j* are also employed journaled in the auxiliary frame. To drive the friction rolls *i* the driving gear *d* meshes into a train of gears *k*, *k*, and *l*, driving the shafts *m*, *m* of the friction driving drums.

A series of ironing boards are indicated at *n*, the auxiliary frame being provided with any suitable main track to guide the movement of the ironing boards. As shown the main track may consist of two angle bars 18 on opposite sides of the machine.

Multiple heated or ironing rolls are indicated at *p*, three being shown in the accompanying drawings, under which the ironing boards pass. These ironing rolls are driven by means of gears *q*, the driving gear *c* meshing with two of the gears *q*, a transmitting gear *r* being employed meshing with two of the gears *q* to drive the gear not in mesh with the driving gear *c*. The ironing rolls *p* I prefer to construct with a recess *s* in each of a shape to receive a collar band. This recess is shown located intermediate the extremities of the drum, the drum being extended on each side of the recess, longitudinally of the drum, to form an ironing base for ironing a shirt bosom on each side of the recess, as well as therebelow.

As above stated, my invention contemplates employing a series of ironing boards *n* so arranged that one after another they will pass under the ironing rolls and be moved back into normal position, completing a cycle of movement, coming back again into position to receive the work. The movement of the series of ironing boards after having been passed through the rolls of the machine back into normal position may be variously effected within the scope of my invention. As shown the frame of the machine is provided with an upper extension *t* reaching across from one side to the opposite side of the frame. The frame is also provided with a lower laterally extended frame or extension *t'* at one side thereof, said extension *t'* supporting a vertical shaft *u* upon which are engaged a series of jointed arms *v* having a jointed engagement with the corresponding ironing board as indicated at *w*. An auxiliary track indicated at *x* is supported on the outer portion of the extension, extending from the rear to the front of the machine on a horizontal plane parallel with the main track, the jointed arms *v* being provided with



a depending lug or guide pin *y* movable in said track, to direct the movement of said arm. These jointed arms support the weight of the board from the shaft when the body of the board is extended beyond the return track and thus prevent binding of the board connection upon the track. The attendant at the discharge end of the machine after removing the work moves the corresponding ironing board laterally upon said track toward the opposite end of the machine and within reach of the operator at the front of the machine, who may readily complete the movement of the ironing board into normal position to receive the work.

To operate the driving shaft *b* I employ an auxiliary driving shaft *z* provided with customary pulleys 10, a pinion 11 upon the shaft *z* meshing with the driving gear *c*.

To move the ironing boards forward between the rolls I employ a driving bar 12 provided with a spring latch 13 to engage the end of the ironing board adjacent thereto, the driving bar 12 being actuated by a vibrating arm 14 engaged therewith forming a part of a yoke 15 mounted upon eccentrics 16 and 17 upon the shafts *m*, *m*. It will readily be observed that the arm 14 is thus given a forward and backward movement to carry the driving bar 12 correspondingly. The spring latch 13 in elevated position engages the adjacent ironing board in the forward movement of the driving bar to force the ironing board between the rolls. In the opposite movement of the driving bar the latch will readily be depressed as will be obvious, so that the driving bar may be returned to normal position, with each rotation of the drum, the yoke 15 being of course actuated by each rotation of the eccentrics upon the shafts *m*, *m*. After the ironing board passes from the auxiliary track to the main track as described, it stops in position ready to be taken up by the driving bar or feeding device so that it will be received by the ironing drums at the proper time to engage the collar band in the depression of the ironing roll. It will readily be seen in the backward and forward movements of the driving bar, the upper side of the driving bar and lower plane of the ironing board being on the same level, that by the backward movement of the driving bar the latch will be displaced, its backward movements to the rear of the board, after passing the rear of the board, releases the latch, the forward movement of the driving bar bringing the latch into contact with the rear end of the ironing board. It will also readily be seen that this forward movement will deliver the ironing board to be carried through by the series of driving drums and ironing drums.

The operation and advantages of the machine will now be readily understood.

My invention contemplates the use of mul-

tiple ironing rolls whereby a shirt front may be ironed by simply being passed once through under the multiple ironing rolls. By providing multiple ironing boards made to travel in a cycle from the discharge end of the machine around and back to the starting point, successively, the operation of the ironing is greatly expedited, an attendant at the front end of the machine simply putting the work upon the ironing boards, and an attendant at the opposite end of the machine removing the work from the ironing boards and directing the several ironing boards one after another back toward the starting point.

It will be observed that a portion of the track *x* runs parallel with the adjacent side of the frame.

What I claim as my invention is:

1. An ironing machine for ironing shirt fronts comprising a series of rotatable ironing drums, a series of driving drums, a traveling bosom board to travel between the ironing drums and the driving drums, a main track to guide the movement of the bosom board beneath the ironing drums, an auxiliary track extending laterally at one side of the main frame from the rear to the front of the machine on a horizontal plane parallel with the main frame, and mechanism whereby the bosom board may be returned from the rear of the frame to normal position, said mechanism movable upon said auxiliary track, said mechanism comprising a series of jointed arms connected to said bosom board.

2. An ironing machine for ironing shirt fronts comprising a series of drums for ironing the shirt front, a traveling bosom board, a main track to guide the movement of the bosom board beneath the ironing drums, an auxiliary track extending laterally at one side the main frame from the rear to the front of the machine on a horizontal plane parallel with the main frame, and mechanism whereby the bosom board may be carried back to normal position without passing back under said drums, said mechanism movable upon said auxiliary track, said auxiliary track being continuous from the front to the rear of the machine, and back from the rear to the front of the machine.

3. An ironing machine for ironing shirt fronts comprising ironing drums for ironing the shirt front, a traveling bosom board, a main track to guide the movement of the bosom board beneath the ironing drums, an auxiliary track extending laterally at one side of the main frame from the rear to the front of the machine on a horizontal plane parallel with the main frame, mechanism whereby the bosom board may be returned from the rear of the frame to normal position independently of the ironing drums, and jointed arms connecting the ironing board with the frame of the machine, said mechanism movable upon said auxiliary track, a



portion of said auxiliary track being parallel with the adjacent side of the frame and on the same horizontal plane with the main track.

4. An ironing machine for ironing shirt fronts comprising a main frame, a series of ironing drums, a traveling bosom board, a main track to guide the movement of the bosom board beneath the ironing drums, an auxiliary track extending laterally at one side of the main frame from the rear to the front of the machine on a horizontal plane parallel with the main track, and mechanism connected with the bosom board guided by the auxiliary track whereby the bosom board may be returned to normal position past one extremity of the ironing drums, said auxiliary track being continuous from the front to the rear of the machine and back from the rear to the front of the machine.

5. A machine for ironing shirt fronts comprising a frame, a series of ironing drums mounted upon said frame, a traveling ironing board, a laterally extended track to carry the ironing boards back into normal position past one extremity of the ironing drums, and jointed arms connected with the ironing board and provided with a guide to traverse said track.

6. An ironing machine for ironing shirt fronts comprising a main frame, a series of rotatable ironing drums mounted upon said frame, a traveling bosom board to travel underneath the ironing drums, successively, a main track to guide the movement of the bosom board beneath the ironing drums, an auxiliary track extending laterally at one side of the main frame from the rear to the front of the machine on a horizontal plane parallel with the main frame, driving mechanism to drive the bosom board, an eccentrically actuated reciprocatory yoke to actuate said driving mechanism, and mechanism whereby the bosom board may be returned from the rear of the frame to normal position at the front of the series of ironing drums, said mechanism being movable upon said auxiliary track.

7. An ironing machine for ironing shirt fronts comprising a main frame, a series of ironing drums, a series of traveling bosom boards, a main track to guide the movement of the bosom board beneath the ironing drums, an auxiliary track extending laterally at one side of the main frame from the rear to the front of the machine on a horizontal plane parallel with the main frame, an upright shaft at one side of the main frame, a series of jointed swinging arms carried by said shaft and connected with said bosom boards whereby the bosom boards may be moved successively back into normal position past one extremity of the ironing drums.

8. An ironing machine for ironing shirt fronts comprising a series of ironing drums,

a series of traveling bosom boards, a main track to guide the movement of the bosom boards beneath the ironing drums, an upright shaft at one side of the main frame, an auxiliary track extending laterally at one side of the main frame and outside said shaft, a series of jointed swinging arms carried by said shaft connected with said bosom boards and guided by said auxiliary track, said auxiliary track being on a horizontal plane parallel with the main track.

9. In an ironing machine provided with rotatable ironing drums and with main and auxiliary driving shafts, multiple ironing boards, a reciprocatory driving device to feed the ironing boards to the ironing drums, and a yoke eccentrically mounted upon the main and auxiliary driving shafts to actuate said driving device.

10. An ironing machine for ironing shirt fronts comprising a series of rotatable ironing drums, a series of driving drums, a traveling ironing board to travel between the ironing drums and the driving drums, a track extending laterally from the main frame whereupon the ironing board may be returned to normal position, and jointed arms connecting the ironing board with the frame of the machine.

11. The combination with an ironing roll having a recess to conform to a collar band, of a bosom board, and means to automatically feed the collar band portion of said board into alinement with said recess within the ironing roll.

12. The combination with an ironing roll, of an ironing board, and a disconnected reciprocating device adapted to automatically engage and move said board toward said roll in its travel in one direction and to be disconnected therefrom in its return movement.

13. The combination with an ironing roll, of an ironing board, and a disconnected reciprocating device provided with a yielding catch to automatically engage and move said board toward said roll in its travel in one direction and to be disconnected therefrom in its return movement.

14. The combination with an ironing roll, of an ironing board, a main track beneath said roll, a disconnected reciprocating member mounted upon said track, means for continuously driving said member upon said track, and means carried by said member to engage and feed said board toward said roll in its travel in one direction and to be disconnected therefrom in its return movement.

15. The combination with an ironing roll and feeding means beneath the same, of an ironing board, a main track beneath said roll, a reciprocating member mounted upon said track, a connection for continuously driving said member upon said track, and a spring actuated catch disposed to contact with the



under surface of said board and having an inclined face and shoulder to engage the board.

16. The combination with an ironing roll having a recess to conform to a collar band, of a bosom board, means to automatically feed the collar band portion of said board into alinement with said recess within the ironing roll, and a track adapted to convey said board from the delivery side of said roll into the path of said feeding means.

17. The combination with an ironing roll having a recess to conform to a collar band, of a bosom board, means to automatically feed the collar band portion of said board into alinement with said recess within the ironing roll, and a continuous laterally disposed track adapted to convey said board from the delivery side of said roll into the path of said feeding means.

18. In an ironing machine, a frame, an ironing roller mounted therein, an ironing board adapted to cooperate with said roller, supporting means beneath said roller, and an endless return track extended at one side of said frame in the plane thereof from the delivery to the feed side of said roller.

19. In an ironing machine, a frame, an ironing roller mounted therein, an ironing board adapted to cooperate with said roller, supporting means beneath said roller, and an endless return track extended at one side of said frame in the plane thereof from the delivery to the feed side of said roller and having its portion next said frame parallel thereto.

20. In an ironing machine, a frame, an ironing roller, an ironing board adapted to cooperate with said roller, supporting means beneath said roller, and supporting means disposed in a horizontal plane to present the board to the operative face of said roller and extending continuously from the outer side of said frame from the delivery to the feed side of said roller.

21. In an ironing machine, a frame, an ironing roller, an ironing board adapted to cooperate with said roller, supporting means beneath said roller, supporting means disposed in a horizontal plane to present the board to the operative face of said roller and extending continuously from the outer side of said frame from the delivery to the feed side of said roller, and independent means to

automatically move said board into engagement with said roller.

22. In an ironing machine, a frame, an ironing roller mounted therein, an ironing board adapted to cooperate with said roller, a return track extended laterally from said frame in the horizontal plane of said roller from an outer side of said frame and from the delivery to the feed side of said roller, and means connected to said board and to a relatively fixed member to support the extended portion of the board during its return movement.

23. In an ironing machine, a frame, an ironing roller, an ironing board mounted to cooperate with said roller, an endless return track extended at one side of said frame in the plane of said roller and from the delivery to the feed side of said roller and having a portion parallel to and adjacent said frame, and a connection extended from said ironing board to said track.

24. In an ironing machine, a frame, an ironing roller, an ironing board mounted to cooperate with said roller, an endless return track extended at one side of said frame in the plane of said roller and from the delivery to the feed side thereof and having a portion parallel to and adjacent said frame, and a depending connection from said board having a friction roller disposed to traverse said track.

25. In an ironing machine, a frame, an ironing roller, supporting means beneath said roller, an ironing board mounted to cooperate with said roller and means, a return track disposed at one side of said frame and having a portion parallel thereto, and a yielding connection mounted upon a fixed pivot and extending to said board.

26. In an ironing machine, a frame, an ironing roller mounted therein, supporting means beneath said roller, an ironing board adapted to travel intermediate of said roller and supporting means, and an endless return track extending laterally at one side of said frame from the delivery side of said roller to the feed side thereof.

In testimony whereof, I have signed this specification in the presence of two subscribing witnesses.

WILLIAM R. HAGER.

Witnesses:

N. S. WRIGHT,  
E. M. SPIELBURG.