

H. Rawson.
Wool-Combing Mach.

Patented Jul. 9, 1861.

32,784.

Fig. 1.

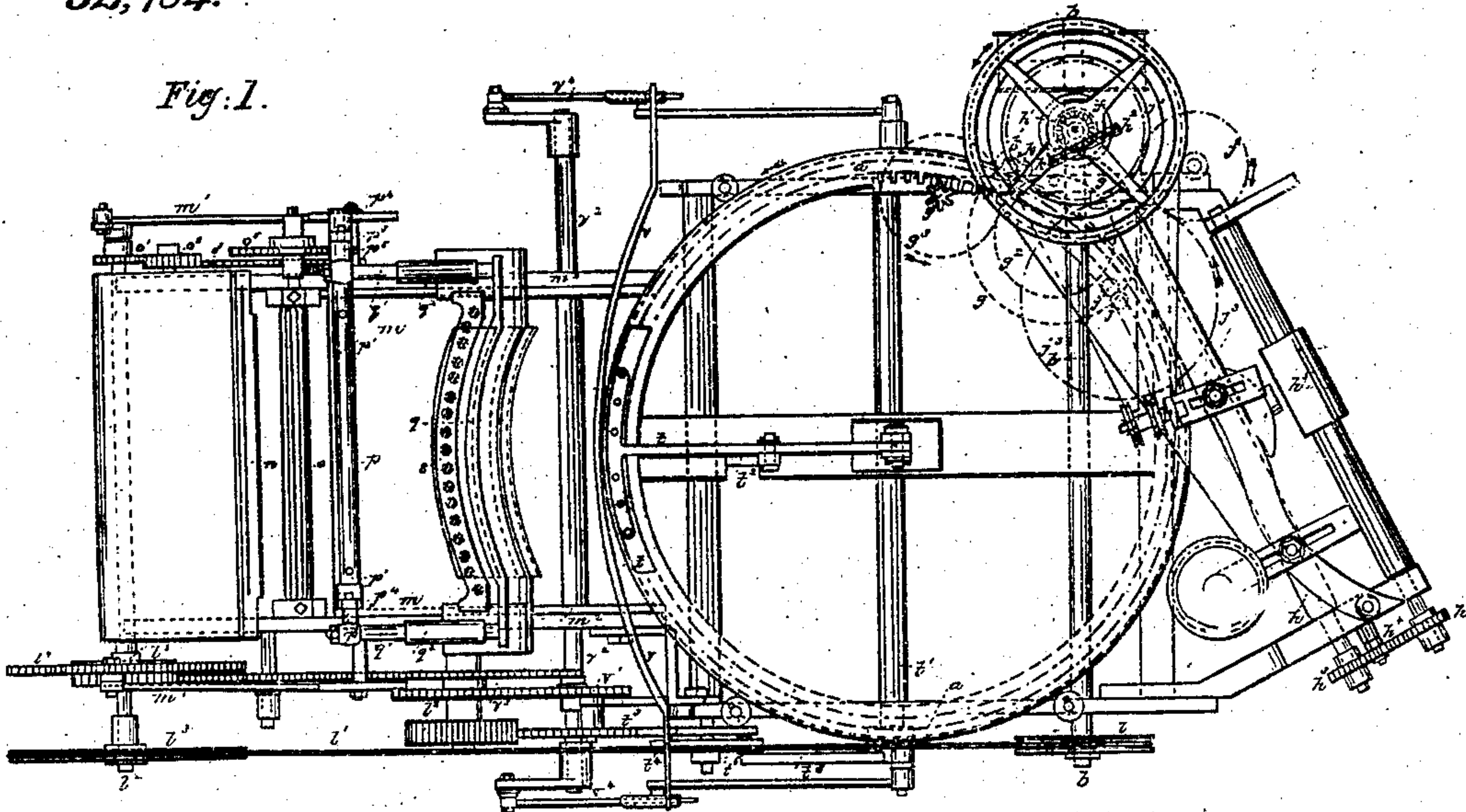


Fig. 2.

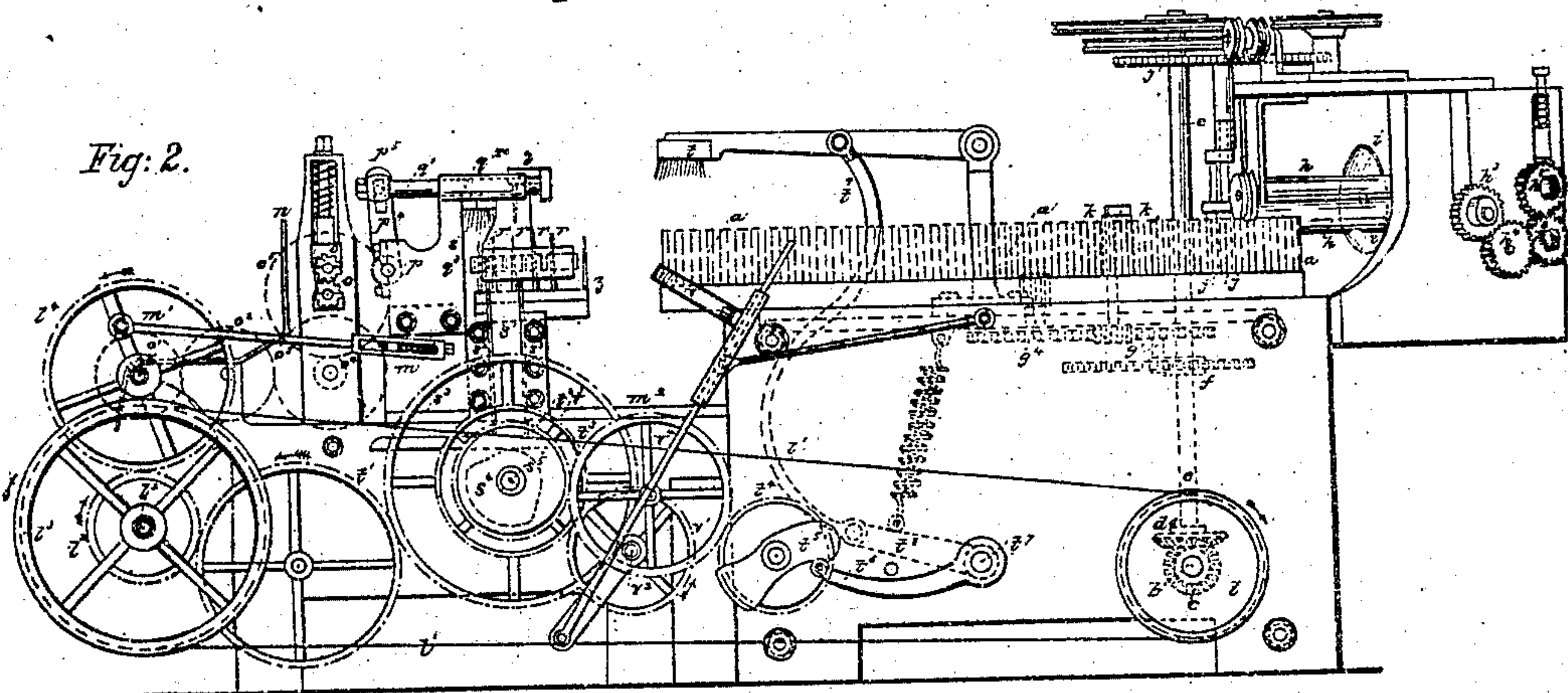
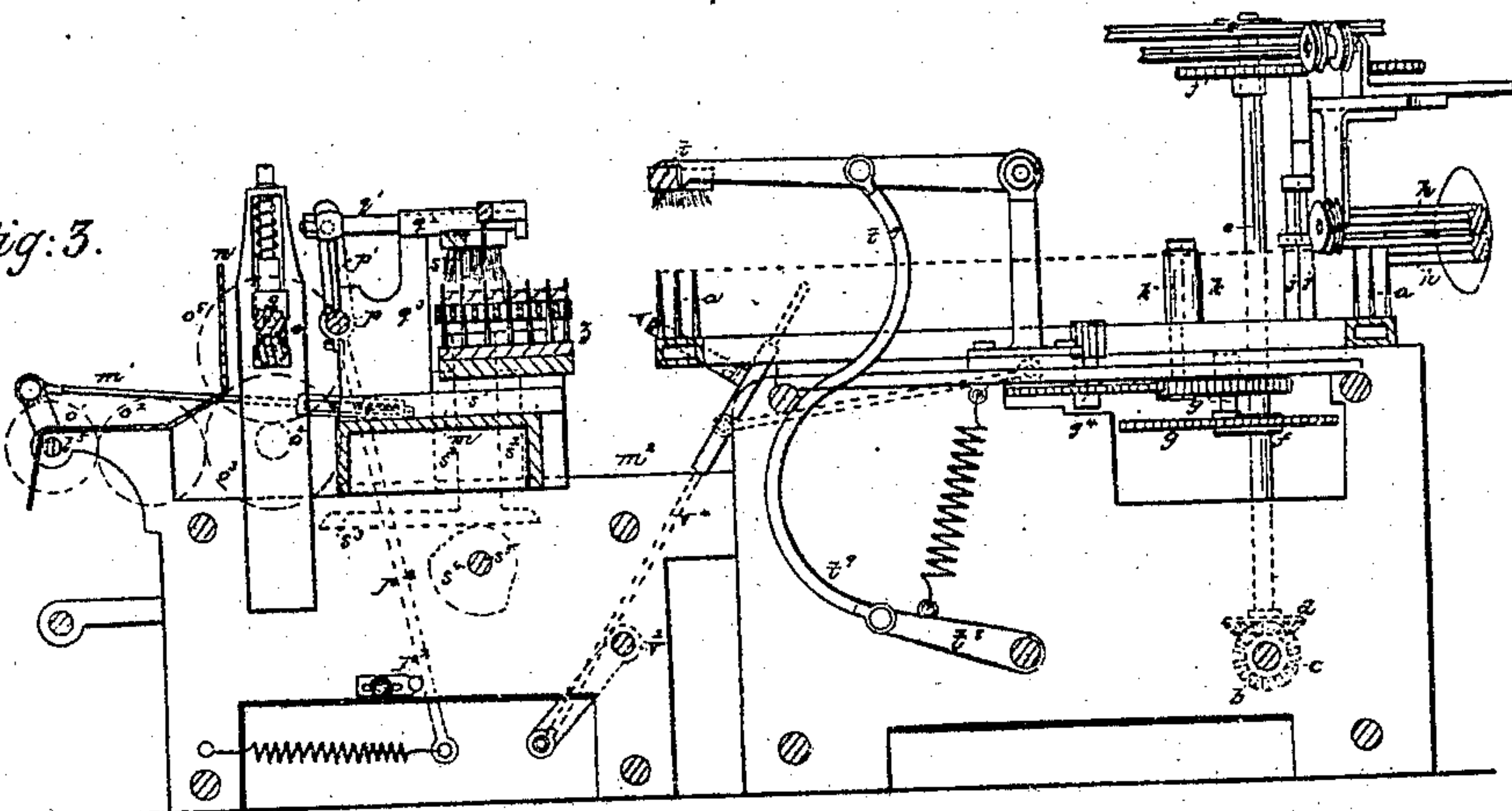


Fig. 3.



Witnesses.
Geo. Pitt
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UNITED STATES PATENT OFFICE.

HENRY RAWSON, OF LEICESTER, ENGLAND.

MACHINE FOR COMBING WOOL.

Specification of Letters Patent No. 32,784, dated July 9, 1861.

To all whom it may concern:

Be it known that I, HENRY RAWSON, of Leicester, England, manufacturer, a subject of the Queen of Great Britain, have invented or discovered new and useful Improvements in Machinery for Combing Wool and other Fibers; and I, the said HENRY RAWSON, do hereby declare the nature of the said invention and in what manner the same is to be performed to be particularly described and ascertained in and by the following statement thereof.

This invention consists in a peculiar mechanism for combing wool and other fibrous matters and consists essentially as follows: First, of a circular or other form of endless traveling comb from which the wool or other fibrous substance is drawn off in the form of a continuous sliver or slivers by drawing rollers or other drawing apparatus such as has heretofore been used for like purposes the noil contained in the wool or other fibrous materials when fed into the machine being left in the traveling comb and a reciprocating comb which moves to and from the endless comb together with a comb or suitable apparatus for advancing the wool or other fibrous substance beyond the reciprocating comb so that the protruding combed out fringe of the wool or other fiber may when the reciprocating comb comes up to and is in contact with the endless comb be pressed in among the teeth of the endless traveling comb in such manner that when the reciprocating comb goes away from the endless comb a quantity of wool or other fiber will be left in the endless traveling comb the ends of which fibers will be combed out. Second, in a combination of certain lifter bars or plates with two of the said combs in manner and to operate substantially as hereinafter described.

Figure 1 is a plan of the machine. Fig. 2 is a side elevation, and Fig. 3 a longitudinal section.

a is a circular traveling comb, or in place thereof any other form of traveling comb may be used. This comb a , a , is caused to receive a rotating motion in the following manner— b is the main or driving shaft which has on it a fast and a loose pulley or drum and receives motion by a strap from a steam engine or other suitable first mover. On the shaft b , is a beveled pinion c , which takes into and gives motion to the wheel d , fixed on the upright axis e . This axis e ,

gives motion by a cog wheel f , fixed thereon to a cog wheel g fixed on the short axis g' , which by another cog wheel g^2 gives motion to the cog wheel g^3 , fixed on the short upright axis g^4 , on which there is a pinion g^5 , which takes into the teeth on the interior of the circular or endless comb a and thus is a continuous rotatory motion communicated to that comb.

In the arrangement shown the wool or other fibrous materials are drawn off by three sets of drawing rollers of ordinary kinds but this may be varied. The longer fibers are drawn off in a continuous sliver by the horizontal rollers h , h , which receive rotatory motion from the upright axis e , on which is fixed a beveled pinion h' , which takes into and drives the wheel h^2 on the axis of the lower roller h which at its other end by a cog wheel h^3 gives motion to an intermediate wheel h^4 , which gives motion to a set of two pressing rollers situated as shown at h^5 , they being geared together by the wheels h^6 into one of which the wheel h^4 gears. See Fig. 2. The sliver from the rollers h h (which are set to an inclination or tangent to the circumference of the circular comb a , a ,) passes through a fixed bell mouthed tube i before it is received between the rollers h^5 . The next sliver is drawn off by the two upright drawing rollers j , j which are interior of the comb a . The axis of one of the rollers j receives motion from the upright shaft or axis e on which there is a cog wheel j' , which takes into and drives the intermediate cog wheel j^2 , which takes into and drives the cog wheel j^3 on the axis of one of the drawing rollers j , and the third sliver is drawn off by the two upright rollers k , k , which are outside of the circular comb a , and these rollers are put in motion by the cog wheel on the short upright axis which gives motion to the comb a , which takes into and drives the cog wheel k' fixed on the axis of one of the drawing rollers k .

I would state that I make no claim to the invention of the circular comb a and its several sets of drawing rollers as described they constituting a combination very similar to what has before been used, but in such cases they have been combined with other means than those shown by the drawing and hereafter described for getting the wool or other fibers into the comb a in a state to be drawn off in slivers.

The drawing partly shows other details

of the mechanism used with the comb a for the purpose of conducting or inclining the fringes of fibers projecting outwardly and inwardly from the comb a toward the drawing off rollers and for conducting off the slivers from the drawing rollers but these details are of the ordinary kind and are partly left out in order to prevent confusion in the drawing and that other parts may be seen more clearly. The drawing does not show how the noil is removed out of the teeth of the comb after it has passed the drawing off rollers k but the ordinary means may be employed.

I will now proceed to describe the combined mechanism by which the wool or other fibrous substance is fed into the machine and by which it is introduced into the circular traveling comb a or by which it may be similarly introduced into other forms of traveling combs.

On the main or driving shaft b there is a pulley l which by an endless band l' gives motion to the shaft or axis l^2 by means of the pulley l^3 fixed thereon. On the axis or shaft l^2 there is a toothed wheel which takes into and drives the cog wheel l^4 on the axis l^5 , which by two cranks give motion to the sliding table m by the two connecting rods m' m' , such sliding table m being guided by fixed rails m^2 m^2 on which the table m moves to and fro. The table carries the fixed comb z , which I have called the reciprocating comb, it simply being caused to move up to and away from the traveling comb a . In the arrangement shown the teeth of the comb z are set in concentric curves with those in the comb a but if another form of traveling comb a were used and it presented straight rows of teeth to the comb z then the rows of teeth of the comb z would be fixed in straight parallel rows but whatever be the shape of the combs a and z their manner of action is respectively to remain substantially the same—that is the comb a is to be moved past the comb z and the comb z is to be moved up to and away from the comb a and in such manner that when they come together the wool or other fibrous material which immediately before the coming together of the two combs a and z has been out from among the teeth of the combs z and a shall be introduced among the teeth of those combs when they are together and when they are for a time as if they were one comb.

The slivers of wool or other fibrous material requiring to be combed are introduced through holes in the plate n , they then pass between the grooved rollers o , o , which receive motion from the shaft or axis l^5 by means of the train of wheels o' , o^2 , o^3 , o^4 , and o^5 , the cog wheel o^5 being fixed to the axis of one of the grooved rollers o . The slivers of wool or of other fibrous material rest on the

axis p between the two projections or guides p' fixed thereto, such axis p being situated between the rollers o and the comb z and it is carried by the moving table of the comb z . On the axis p there is an arm p'' the lower end of which is constantly drawn by a spring toward the rear of the machine and is stopped from coming too far by the fixed projection or stop p^3 . On the axis p there are also two arms p^4 p^4 the upper ends of which have slotted openings through them to receive the projecting pins p^5 p^5 of the sliding bolts q' of the comb q the sliding bolts q' sliding in sockets q^2 at the upper parts of the uprights q^3 fixed to the table which carries the comb z . By these means the comb q has a to and fro motion communicated to it independent of the motion of the table though partly caused by the movement of that table to and from the comb a , for although the comb q is carried to and fro by the movement of the sliding table the comb q is caused to move toward the front of the machine faster than the sliding table and the comb q is also caused to move faster than the sliding table as they both go toward the comb a . The object of these movements in respect to the comb q is that the comb may advance the wool or other fibrous material toward the comb a during the time that those materials are out from among the teeth of the comb z in such manner that the cleaned or combed out ends of the slivers may project beyond the teeth of the comb a while the noil contained in the parts of the fibers where they were previously among the teeth of the comb z are brought over the teeth of the comb a so that when pressed down among the teeth of the comb a the noil will be among the teeth of the comb a .

Between the rows of teeth of the comb z there are plates or bars r r , and above these plates or bars r there is a brush s . The object of these arrangements is that the plates or bars should raise the wool or other fibrous materials out from among the teeth of the comb z and support such fibers while the plates or bars r and the comb q go toward the comb a and allow of the comb q , advancing the fibers while they are resting on the bars or plates r .

I would state it is not new to arrange combs with plates or bars between the rows of teeth in such manner that the fibers may be lifted out from among the teeth of the comb or the teeth of the comb may go away from among the fibers while they are supported by the bars or plates, various arrangements of such bars or plates and combs having been before used. I do not therefore claim the same.

The bars or plates r , and the brush s are caused to move up and down at the same time by their being carried by two upright slides s' , which move between guides s^2 . The

upright slides s' have horizontal bars s^3 fixed to them at their lower ends and these bars constantly rest on the cams s^4 on the axis s^5 , which receives motion as hereafter described by which means the bars or plates r and the brush s are caused to ascend after the comb z may have attained its rearmost position and may be moving toward the comb a . By means of the plates r, r , the fibers will be lifted out of the comb z in order that they may be moved by the comb q , which moves faster than the comb z . The brush s and plates or bars r descend when the brush t descends the same being in order that the wool or other fibrous material may be pressed into the teeth of the combs a and z immediately before the comb z moves away from the comb a .

The cam shaft or axis s^5 and the brush t receive motion in the following manner: On the shaft or axis t^2 there is a cog wheel t^x which takes into and drives the intermediate wheel t' , which gives motion to the cog wheel on the axis s^5 and on that axis is a cog wheel t^2 which takes into and drives the intermediate wheel t^3 which takes into and drives the wheel t^4 on the axis of the cam t^5 , which gives motion to the arm t^6 on the axis t^7 , and the axis t^7 by an arm t^8 and connecting rod t^9 gives motion to the brush t which is mounted on a lever as shown.

v is a bent blade which descends on to and presses the fibers downward which are being combed out between the combs a and z such blade v being caused to descend to such an extent as to insure that there shall be no fiber held by the comb z and the comb a , at the time the comb z begins to approach toward the comb a' this bent blade is actuated from the cam shaft by means of the cog wheel v' on the axis v^2 taking into and being driven by a cog wheel v^3 on the cam axis. The bent blade v is connected to two crank arms on the axis v^2 by two connecting rods v^4 .

Having thus described the nature of the invention and the manner of performing the same, I would have it understood that I make no claim to any of the mechanical parts or instruments separately. But

What I claim is—

1. The combining a comb z worked as herein described with a comb a . and a comb q substantially as herein described.
2. The combining of a comb q with a comb z and bars or plates r , substantially as herein described.

Leicester, 22nd April, 1861.

H. RAWSON.

Witnesses:

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C. SEBASTIAN SMITH.