

No. 791,986.

PATENTED JUNE 6, 1905.

R. F. McFEELY.

STARTING OR STOPPING MECHANISM.

APPLICATION FILED AUG. 3, 1900. RENEWED MAY 8, 1905.

3 SHEETS—SHEET 1.

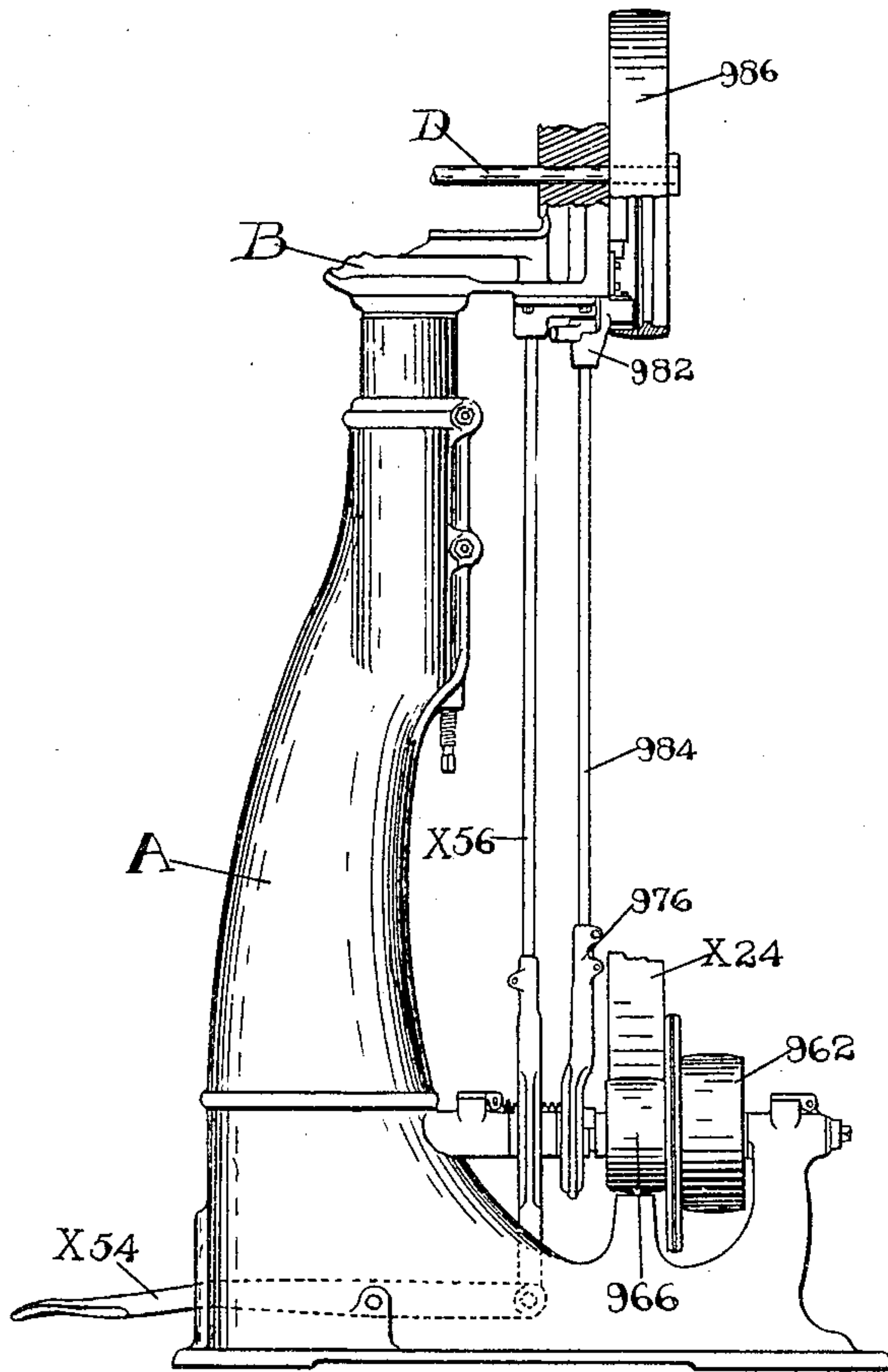


Fig. 1.

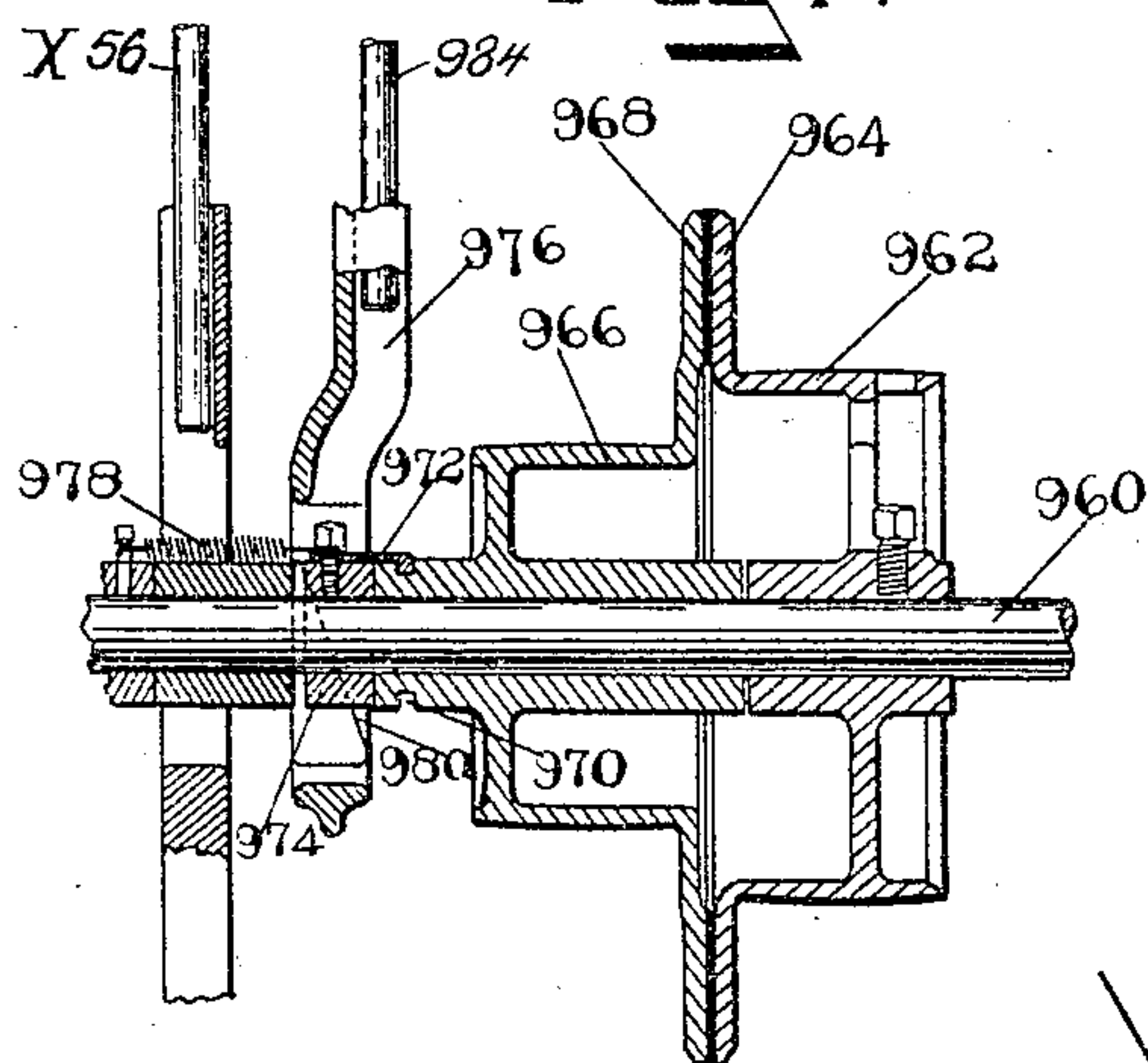


Fig. 2.

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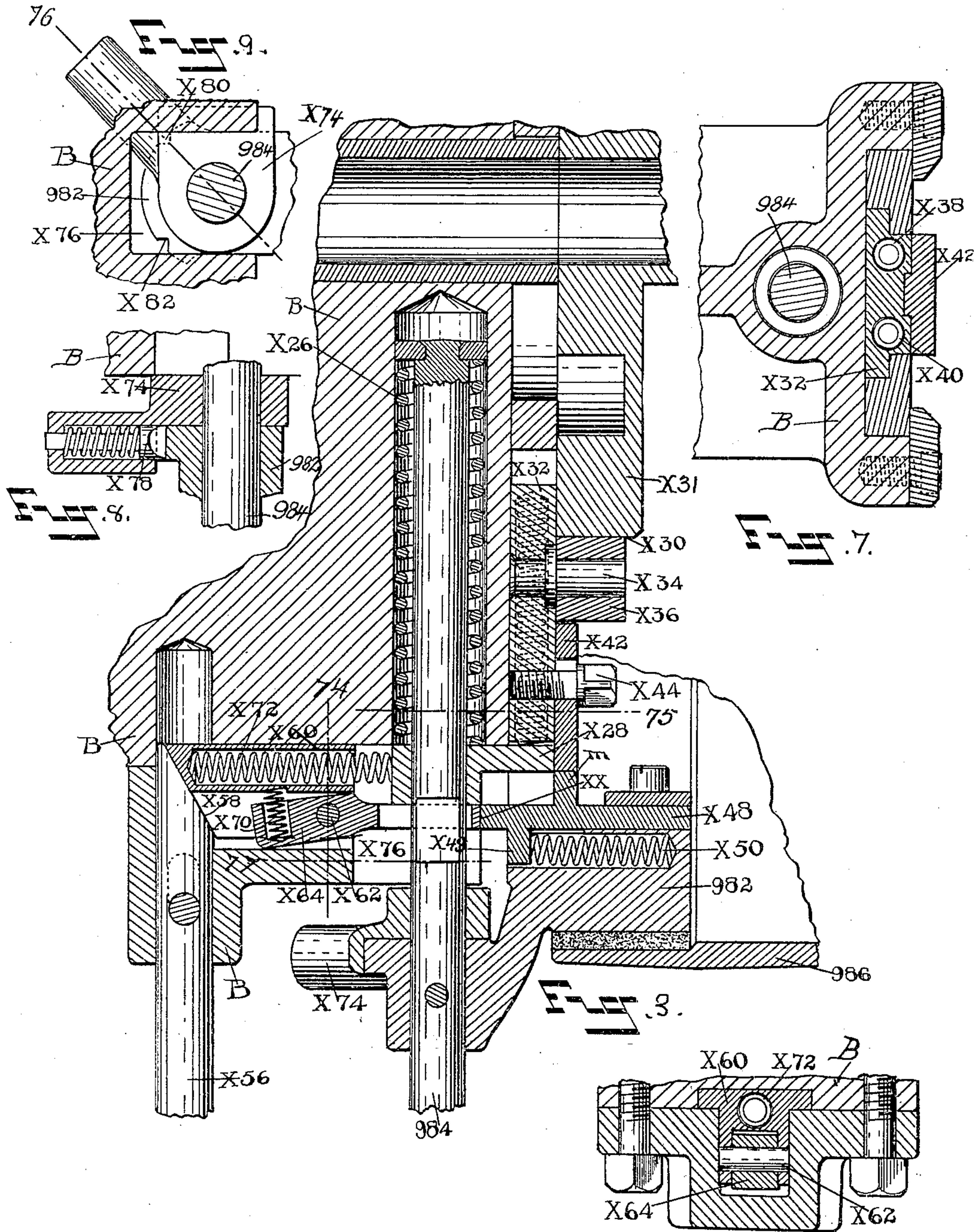
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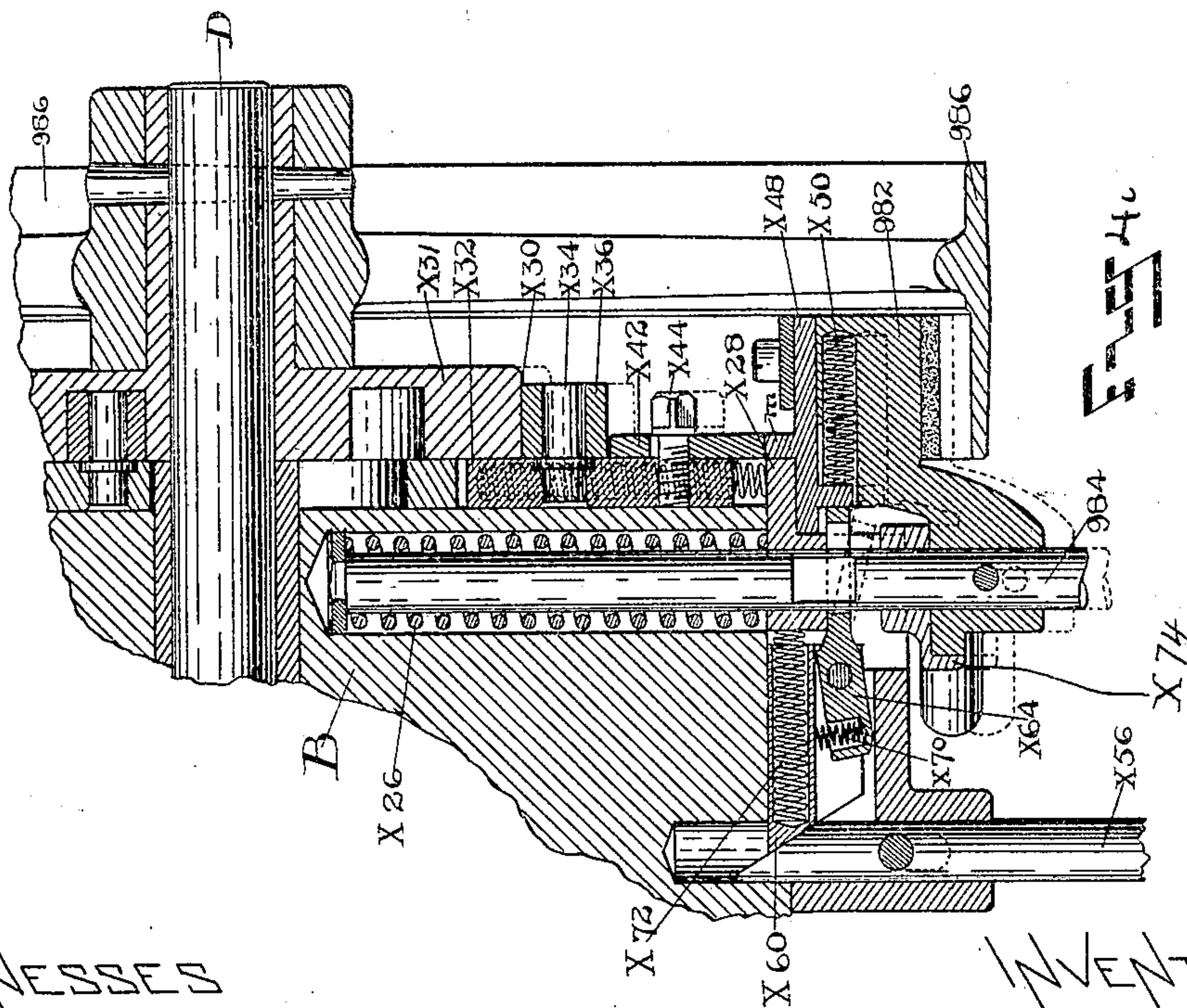
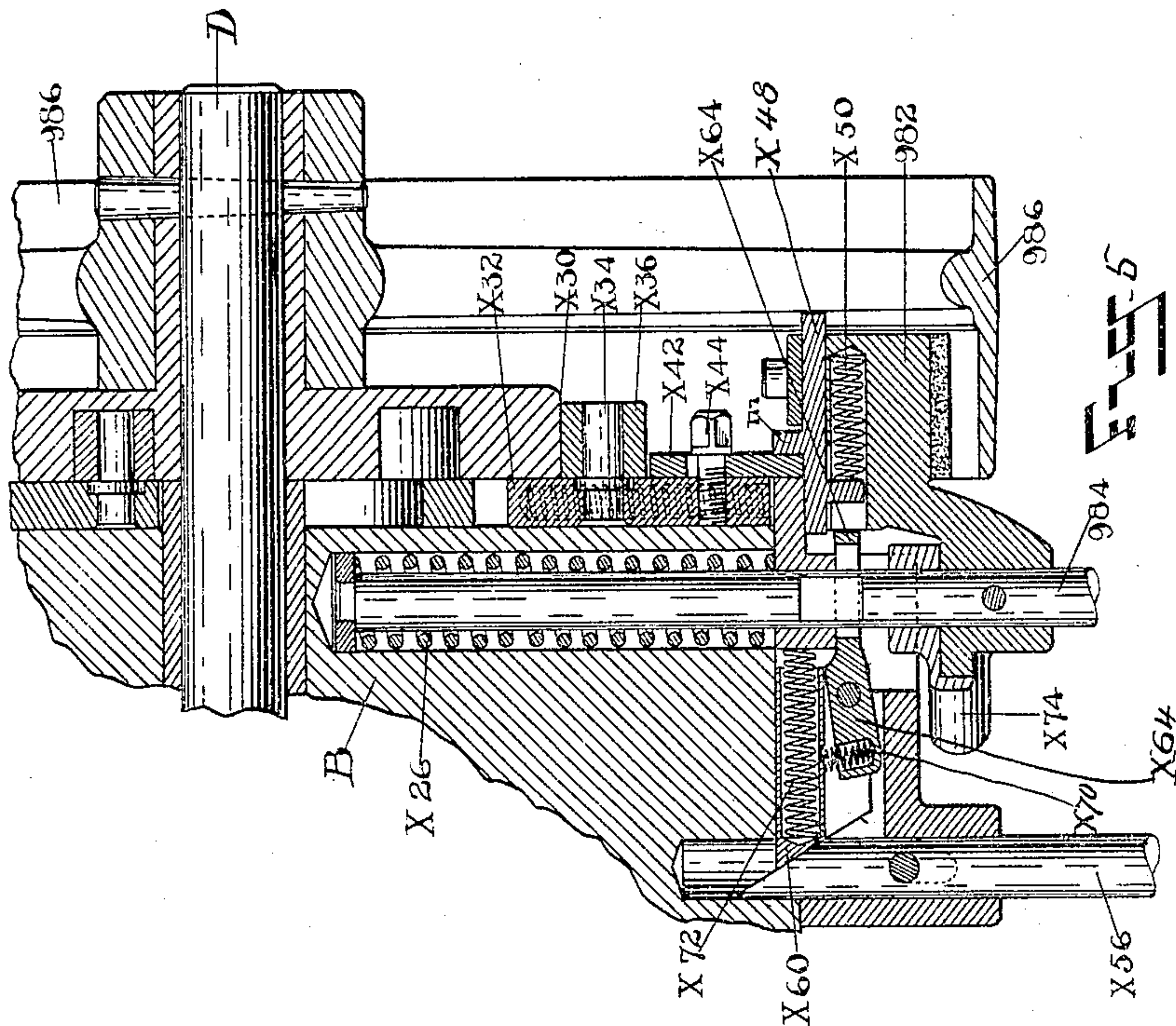
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3 SHEETS—SHEET 3.



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STARTING OR STOPPING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 791,986, dated June 6, 1905.

Original application filed September 19, 1899, Serial No. 730,979. Divided and this application filed August 3, 1900. Renewed May 8, 1905. Serial No. 259,431.

To all whom it may concern:

Be it known that I, RONALD FRANCIS McFEELY, a citizen of the United States of America, and a resident of Beverly, in the county of Essex and Commonwealth of Massachusetts, have invented certain Improvements in Starting and Stopping Mechanism, of which the following, read in connection with the accompanying drawings, is a specification.

Of the accompanying drawings, Figure 1 is a side elevation, partly in section, of mechanism embodying this invention. Fig. 2 is an elevation of a central vertical longitudinal section showing parts of the mechanism connected with the machine-base. Fig. 3 is an elevation of a section showing parts of the mechanism connected with the machine-head. Figs. 4 and 5 are duplicates of Fig. 3, showing the parts in different positions. Fig. 6 is an elevation of a section on line 74 of Fig. 3. Fig. 7 is a plan of a section taken on line 75 of Fig. 3. Fig. 8 is an elevation of a section on line 76 of Fig. 9. Fig. 9 is a plan of a section on line 77 of Fig. 3.

The mechanism represented comprises a pedestal A and head B. In the head B is journaled the shaft D, which, it will be understood, is the shaft operated by the starting and stopping mechanism. Obviously the shaft D may be suitably connected with different mechanisms which it is desirable to operate therefrom.

A shaft 960, journaled in the machine-base, carries a fixed pulley 962, to which the primary power is applied from any convenient source. Said pulley has a flange 964, the face whereof constitutes one member of a friction-clutch. The pulley 966 runs loose on the shaft 960 and has a flange 968, constituting the other member of said friction-clutch. In the hub of said pulley 966 is a groove 970, which receives the inturned end of a connecting-plate 972, extending from the collar 974, which collar is movable endwise of the shaft 960. A spring 978, secured at one end to a fixed part of the pedestal or frame and at the other end to the movable collar 974, operates

normally to hold clutch member 968 out of engagement with the member 964. The part 976 has a wedge-face 980 in engagement with the collar 974. By an upward vertical movement of said part 976 the collar 974, and consequently the pulley 966, are moved to carry the flange 968 into engagement with flange 964, thus causing the machine to start. Connected with the part 976 is a rod 984, having its top end socketed in the head and resting on the spring X²⁶. (See Fig. 3.) Said spring has its other end on the ledge X²⁸, and when permitted so to do it operates to lift the rod, and consequently to start the machine. A reverse movement of said part 976 allows the spring 978 to act to separate the flanges, causing the machine to stop. The stopping is made more effective by a brake-shoe 982, which to that end is supported on rod 984 in position for bearing upon the wheel 986. Said wheel has connection with the shaft D and also has connection with the pulley 966 by a belt X²⁴. In the slide X³² is a fixed stud X³⁴, whereon turns the roll X³⁶. Springs X³⁸ X⁴⁰, socketed in the slide X³², have end bearing on the ledge X²⁸ and actuate the slide X³² upwardly, thereby keeping the roll X³⁶ in engagement with the working face of cam X³¹ on shaft D. Connected with the slide X³² is a plate X⁴², the connection being made by a clamping-bolt X⁴⁴, which, having screw-threaded engagement with slide X³², is movable to allow for adjusting the position of said plate X⁴². The plate X⁴² has its bottom end normally resting on the upwardly-projecting limb *m* of the slide X⁴⁸, which, it will be observed, has a projecting lug X⁴⁹ entering a suitable recess in the brake-shoe 982 for permitting movement of slide X⁴⁸ horizontally against the resistance of spring X⁵⁰. The cam X³¹ on shaft D comprises two oppositely-disposed cam-rises, one of which, X³⁰, is shown, whereby the roll X³⁶ is forced to move downwardly. This movement, through the slide X³², plate X⁴², and slide X⁴⁸, in one position of the parts depresses the brake-shoe 982 into bearing with the wheel 986 and also depresses the rod 984, compressing the spring X²⁶, so

that when permitted to do so it will lift the rod. The treadle X^{54} has connection with rod X^{56} , the top end whereof is socketed in the head B and has the wedge-face X^{58} in engagement with a similar face on the slide X^{60} . Supported pivotally by a pin X^{62} on slide X^{60} is a lever X^{64} , having its rear end normally bearing against the slide X^{48} , as indicated at point X X, Fig. 3.

In starting the machine the workman depresses treadle X^{54} , and thereby causes an upward movement of the rod X^{56} , whereby slide X^{60} is pushed backwardly, carrying with it the lever X^{64} , and thereby forcing the slide X^{48} backwardly, carrying limb m from under the plate X^{42} , whereupon the spring X^{26} is allowed to operate for lifting the rod 984, and consequently starting the machine, the parts taking the position shown in Fig. 5. Since the cam X^{31} is now rotating, the rise or projection X^{30} recedes from the roll X^{36} , whereupon the springs X^{38} X^{40} lift the slide X^{32} , and consequently the plate X^{42} , carrying it upwardly sufficiently to permit the slide X^{48} to move forwardly under the influence of the spring X^{50} , whereby the limb m is again set directly under the plate X^{42} . (See Fig. 4.) The rear end of the lever X^{64} will now stand under the slide X^{48} , and one of the rises of the cam X^{31} next depresses the roll X^{36} , carrying with it the slide X^{32} , and consequently the plate X^{42} , which in turn depresses the slide X^{48} , carrying with it the rod 984 against the tension of spring X^{26} and forcing the brake-shoe 982 into engagement with the wheel 986. The wedge 980 is simultaneously moved to permit the spring 978 to act for retracting the flange 968, whereupon the machine will stop. It is supposed that all this time the workman has retained the lever X^{54} in the depressed position, so that the rear end of the lever X^{64} has been depressed against the spring X^{70} and still remains under the slide X^{48} , as shown by dotted lines in Fig. 4.

It may now be observed, first, that the machine has stopped even while the starting-lever X^{54} has remained depressed, and, secondly, that in order to restart the machine lever X^{54} must be lifted to the normal position, and thereby reversely move the rod X^{56} downwardly and allow the spring X^{72} to act for returning the slide X^{60} , and consequently the lever X^{64} , to their normal positions, whereupon the spring X^{70} will reversely lift the rear end of the lever X^{64} and set it in line against the slide X^{48} preparatory for the next starting operation, which may then be effected by depressing the lever X^{54} , as before stated. By this mechanism the stopping of the machine at a predetermined point in the cycle of its general operation is made to take place independently of the starting-lever, and accidental restarting of the machine is avoided. The mechanism also comprises the block X^{74} , which, being mounted to permit turning on

the rod 984, has its top end adapted to enter the recess X^{76} in head B, and it also has a handle extension whereby it may be turned on rod 984 for bringing its said top end into and out of alinement with said recess X^{76} . Obviously when in such alinement it will be lifted into said recess by an upward movement of rod 984, incidental to starting of the machine, as before described; but when not in such alinement it will strike against the head, thereby preventing the said upward movement of rod 984, and consequently preventing the starting of the machine. In the said handle extension is a spring-actuated plunger X^{78} , adapted for entering notches X^{80} X^{82} in the brake-shoe 982, whereby to hold the block against accidental displacement. This block is intended for use particularly whenever it may be desirable to leave the machine for a time unattended and also whenever it may be desirable to lock the machine against possible starting while the workman is making changes or adjustments in and about the machine.

While the mechanism of this application obviously is not limited to use in connection with any particular machine, it is well adapted for employment with pulling-over or like machines. Letters Patent of the United States No. 663,777, granted to me December 11, 1900, show such a machine equipped with the starting and stopping mechanism described and claimed in the present application, and this application is a division of the original application which resulted in the grant of said patent.

I claim—

1. In a starting and stopping mechanism, the combination of a shaft, a clutch member fixed on said shaft, a cooperating clutch member loose on said shaft, an endwise-movable rod, a spring normally contracted and tending to move said rod, a part, means for moving said part whereby the spring is rendered effective for moving the rod in one direction to engage the said clutch members, and means independent of said part for moving the rod in the opposite direction to disengage the said clutch members.

2. A starting and stopping mechanism, comprising a shaft, a clutch member fixed on said shaft, a cooperating clutch member loose on said shaft, an endwise-movable rod, a spring normally contracted and tending to move said rod, a part, means for moving said part whereby the spring is rendered effective for moving the rod in one direction to engage the said clutch members, and means independent of said part for moving the rod in the opposite direction to disengage the said clutch members, combined with means independent of said part for locking the rod.

3. A starting and stopping mechanism, comprising a shaft, a clutch member fixed on said shaft, a cooperating clutch member loose on

said shaft, a rod, a part, means to move said part whereby the rod is rendered movable in one direction for connecting the clutch members, means independent of said part to separate the clutch members, combined with means independent of said part for locking the rod against movement.

4. In a starting and stopping mechanism, a shaft, a clutch member fixed on said shaft, a cooperating clutch member loose on said shaft, a rod, a brake member on the rod, a cooperating brake member, a spring normally contracted and tending to move said rod, a part, means to move said part whereby the spring is rendered effective to move the rod in one direction for engaging the clutch members, said movement of the rod operating to simultaneously release one of said brake members, and means independent of said part to move the rod in the opposite direction to disengage the clutch members and engage the brake members.

5. A shaft, means to revolve said shaft, a second shaft, power-transmitting connections between said shafts whereby motion of said first shaft is transmitted to revolve said second shaft, said connections being normally inoperative, a treadle, means comprising the rod 984 and connections, rendered operative by a movement of the treadle for causing said power-transmitting connections to operate for starting said second shaft, and means adapted to be actuated by the cam X^{30} on said second shaft for moving the rod 984 to render the said power-transmitting connections inoperative.

6. A shaft, means to revolve said shaft, a second shaft, power-transmitting connections between said shafts whereby motion of said first shaft causes rotation of said second shaft, said connections being normally inoperative, mechanism including the endwise-movable rod 984 and a spring normally contracted and tending to actuate such rod for rendering operative the said power-transmitting connections, a treadle and connections adapted for movement by the treadle, whereby said spring is rendered effective for endwise moving the rod 984 and causing the revolutions of said second shaft to begin.

7. A shaft, means to revolve said shaft, a second shaft, power-transmitting connections between said shafts whereby motion of said first shaft causes rotation of said second shaft, said connections being normally inoperative, mechanism including the endwise-movable rod 984 and a spring normally contracted and tending to actuate such rod for rendering operative the said power-transmitting connections, a treadle and connections adapted for movement by the treadle, whereby said spring is rendered effective for endwise moving the rod 984 and causing the revolutions of said sec-

ond shaft to begin, and means independent of the treadle actuated by said second shaft for rendering said power-transmitting connections inoperative, said means operating to simultaneously effect the contraction of said spring.

8. A shaft, means to revolve said shaft, a second shaft, power-transmitting connections between said shafts whereby the movement of said first shaft is caused to revolve said second shaft, said connections being normally inoperative, a wheel on said second shaft, a brake-shoe for said wheel, mechanism for rendering operative the said power-transmitting connections and a spring normally under tension and tending to actuate such mechanism, a treadle, and a part to be adjusted by a movement of the treadle, whereby said spring is rendered effective and said mechanism moved thereby for causing the revolutions of said second shaft to begin and for simultaneously lifting the brake-shoe from said wheel.

9. A shaft, means to revolve said shaft, a second shaft, power-transmitting connections between said shafts whereby motion of said first shaft is made to revolve said second shaft, said connections being normally inoperative, a wheel on said second shaft, a brake-shoe for said wheel, a treadle, mechanism put into operation by a movement of the treadle whereby said power-transmitting connections are rendered operative for causing the revolutions of said second shaft to begin, said mechanism operating to simultaneously remove the brake-shoe from said wheel, and means adapted to be actuated by said second shaft for reversely moving said mechanism, whereby the power-transmitting connections are rendered inoperative and the brake-shoe is applied to the wheel simultaneously.

10. In a starting and stopping mechanism a clutch, a rod, a part, means for moving said part to allow the rod to be moved in one direction for connecting the clutch and starting the machine, and means independent of said part for moving the rod in the opposite direction to allow the clutch to be disconnected and separate means for disconnecting the clutch to stop the machine.

11. In a starting and stopping mechanism a clutch, a rod, a part, means including a sliding member for moving said part to allow the rod to be moved in one direction for connecting the clutch and starting the machine, and means independent of said part for moving the rod in the opposite direction to allow the clutch to be disconnected to stop the machine.

Signed by me at Lynn, Massachusetts, this 27th day of July, 1900.

RONALD FRANCIS McFEELY.

Witnesses:

A. M. TUTTLE,
C. B. TUTTLE.

It is hereby certified that in Letters Patent No. 791,986, granted June 6, 1905, upon the application of Ronald Francis McFeely, of Beverly, Massachusetts, the title of the invention was erroneously written and printed "Starting or Stopping Mechanism," whereas the said title should have been written and printed *Starting and Stopping Mechanism*; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 18th day of July, A. D., 1905.

[SEAL.]

F. I. ALLEN.

Commissioner of Patents.